

## What's in a Name?

Kathryn Rosica of the Chemical Manufacturers Association raised an interesting point in her letter (*EHP* vol. 102, p. 1006). Neither the term "glycol ethers" nor the term "ethylene glycol ethers" strictly identifies a class of chemicals whose members all share a common distinctive toxicological profile. As Rosica correctly noted, "Higher molecular weight ethylene glycol monoethers that have been tested have not been associated with significant adverse developmental and reproductive effects." For these compounds, the most sensitive toxic endpoint is usually the destruction of red blood cells.

However, Rosica's carefully limited language may have created a misimpression of its own. The class of "higher molecular weight ethylene glycol monoethers that have been tested" is limited, so far as I am aware, to just four chemicals: ethylene glycol propyl ether, ethylene glycol butyl ether, ethylene glycol hexyl ether, and ethylene glycol phenyl ether. Most glycol ethers are excluded by this careful description. Many of the excluded compounds have been shown to cause fetal malformations, embryofetal death, and testicular atrophy, by the same mechanisms and in some cases with the same potency as the more notorious ethylene glycol methyl ether (EGME) and ethylene glycol ethyl ether (EGEE). These similarly toxic but less frequently discussed glycol ethers include ethylene glycol dimethyl ether (1,6), ethylene glycol diethyl ether (3,7), diethylene glycol methyl ether (3,8), diethylene glycol dimethyl ether (3-5,9-13), diethylene glycol diethyl ether (3,4), and triethylene glycol dimethyl ether (3,4,10,14,15). In fact, most of the ethylene glycol ether derivatives tested do share a common toxicological profile. Nor is the teratogenicity of the glycol ethers limited solely to ethylene glycol ether derivatives; the beta isomer of propylene glycol methyl ether is also a powerful teratogen (16,17).

Clear terminology is always desirable. To be strictly accurate, one might properly use the phrase "the teratogenic, embryolethal, and spermatotoxic glycol ethers," to differentiate these compounds from other

glycol ethers such as the highly hematotoxic ethylene glycol butyl ether. However, as a practical matter, most ethylene glycol ethers are teratogens and testicular toxins. The fact that research and discussion have focused heavily on EGME and EGEE, the toxicological archetypes of the series, may have fostered an erroneous belief on the part of chemical manufacturers, users, and product formulators that the less frequently cited compounds are "safe" substitutes. Clearly, many of them are not. To continue that narrow focus and to suggest that glycol ethers other than the "classic" EGME and EGEE and their acetates do not share a similar toxicological profile would be a great disservice to those people who may be exposed to these compounds.

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## Intriguing Innovation

I was delighted to read "An ECOLOGICAL Way to Dispose of Waste" in the September *Innovations* (*EHP* vol. 103, pp. 808-810). For many years I have been concerned about the human health effects from minute doses of persistent synthetic chemicals. It seemed that there was no way to get them out of our environment. Now the organic compounds can be changed back into harmless substances and can be separated out, contained, and then perhaps reused.

One doctor who would have been glad to know of any elimination of man-made chemicals was Theron G. Randolph, who died September 29, 1995, at age 89. In the 1950s he discovered that many of his patients were made ill by minute doses of chemicals; for example, the pesticides on

## WHAT'S YOUR PERSPECTIVE?

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